

[LOW-TEMPERATURE POLYSILICON THIN FILM TRANSISTOR AND FABRICATION METHOD THEREOF]

Abstract

An LTPS-TFT structure comprises a gate, a gate dielectric layer, a patterned silicon layer, a patterned insulating layer, an ohmic contact layer and a source/drain layer. The gate and the gate dielectric layer are disposed on the substrate. The patterned silicon layer and the patterned insulating layer are disposed on the gate dielectric layer over the gate. The patterned silicon layer comprises a polysilicon channel region and an amorphous silicon hot carrier restrain region. The ohmic contact layer is disposed on a portion of the patterned silicon layer other than the polysilicon channel region and the amorphous silicon hot carrier restrain region and a portion of the patterned insulating layer over the amorphous silicon hot carrier restrain region. The source/drain layer is disposed on the ohmic contact layer and the gate dielectric layer.